Proposal Schedule [Attachment 5]

Timeline for performing tasks as outlined in work plan

The SWES proposal work will extend across a 3-year time period (April 1, 2015 – March 31, 2018) with major activities organized by quarterly intervals (QTRs). The overall schedule of task activity by quarter are provided in Table 1 below.

Table 1. SWES Overall Proposal Task Schedule

	2015			2016				2017				2018
	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar
	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12
Task 1: *Direct Project Administration and Reporting*	■	■	■	■	■	■	■	■	■	■	■	■
Task 2: *Design WaterSmart Hot Water Messaging Content*	■				■				■			
Task 3: *Randomized Deployment of WaterSmart Software*	■	■										
Task 4: *Data platform for integrating water-energy data, infrastructure and residential systems*			■	■	■	■	■	■	■	■	■	■
Task 5: *Application for Estimating Energy Intensity of Water and Wastewater Infrastructure Systems*					■	■	■					■
Task 6: *Monitoring and Verification of Water-Energy Reductions from WaterSmart Deployment*				■				■				■
Task 7: *Proposal Monitoring Plan*	■			■				■				■

Task 1 (Direct Project Administration and Reporting) includes consistent activity across all twelve quarters of the project. While there is ongoing activiy on this task across the lifespan of the overall project it is worth noting that total budget expenditure specifically on administrative efforts within this task will not exceed 5% of the total budget.

Task 2 (Design WaterSmart Hot Water Messaging Content) will take place early in the project cycle (QTR 1), so that the initial hot water messaging content can be immediately incorporated into the WaterSmart technology and deployed to treatment households in QTR 2 (Task 3). Further, the hot water messaging wil be reviewed and revised annually based on monitoring and verification activities (Task 6) to inform the design and deployment of the following year's home water reports (QTR 5 and QTR 9).

Task 3 (Randomized Deployment of WaterSmart Software) begins with the collection, consolidation, and analysis of customer utility data from all the participating cities (Fresno, Modesto, Ontario, Riverside, and Turlock) in QTR 1. We will use this data to establish parameters for the randomization procedure, so that households randomly selected for the treatement groups effectively represent a broad distribution of customer classes. The results of this randomization will then be applied to the actual deployment of WaterSmart in QTR 2.

Task 4 (Data Platform for Integrating Water-Energy Data) will begin after we have deployed WaterSmart (Task 3) and focus our efforts on the careful design and elaboration of a database that can accommodate data from both the water and wastewater infrastructure systems (SCADA, GIS, and energy meter data), as well as customer utility data (water, gas, and electricity). Once created, this

database will be updated quarterly with the most recent data from all project partners. The platform itself will be also be continuously improved over the life of the project by reviewing and enhancing the accessibility, usability, and embedded data security elements of the platform.

Task 5 (Application for Energy Intensity of Water and Wastewater Infrastructure Systems) involves building an analytical tool for mapping water infrastructure energy intensity based directly on the data architecture developed in Task 4. We will begin building the application in QTR 5 and will continue to develop, review, and update the application through QTR 7.

Task 6 (Monitoring and Verification of Water-Energy Reductions from WaterSmart Deployment) We will leverage our integrated database to conduct annual evaluations (QTR 4, QTR 8 and QTR 12) of the water and energy impacts driven by WaterSmart based on the previous year's data. The QTR 4 evaluation will look at preliminary results of WaterSmart on household water, gas, and electricity and gas usage. The QTR 8 evalution will apply the infrastructure energy itensity analysis (Task 5) to the evaluation to estimate total residential and infrastructure, water and energy savings. The results of the QTR 4 and QTR 8 evaluations will inform the the review and revision of hot water messaging content as required by Task 2 in QTR 5 and QTR 9. The QTR 12 evaluation will verify the total water and energy savings driven by the WaterSmart deployment over the full life of the project.

Task 7 (Proposal Monitoring Plan) is designed to specifically set aside project effort for CWEE and WaterSmart to collaborate directly with DWR to design and finalize the monitoring plan (QTR 1), and then participate in the annual project evaluations as listed in Task 6 (QTR 4, QTR 8, and QTR 12).

All sub-projects under the SWES proposal–the five separate WaterSmart deployments in the cities of Fresno, Modesto, Ontario, Riverside and Turlock–will follow the exact same schedule as the overall proposal schedule as provided in Table 1. However, these identical schedules sub-project schedules are explicitly provided below to meet the proposal requirements as outlined in the DWR Water-Energy Grant PSP.

Table 2. SWES Fresno Proposal Task Schedule

	2015			2016				2017				2018
	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar
	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12
Task 1: *Direct Project Administration and Reporting*	■	■	■	■	■	■	■	■	■	■	■	■
Task 2: *Design WaterSmart Hot Water Messaging Content*	■				■				■			
Task 3: *Randomized Deployment of WaterSmart Software*	■	■										
Task 4: *Data platform for integrating water-energy data, infrastructure and residential systems*			■	■	■	■	■	■	■	■	■	■
Task 5: *Application for Estimating Energy Intensity of Water and Wastewater Infrastructure Systems*					■	■	■					■
Task 6: *Monitoring and Verification of Water-Energy Reductions from WaterSmart Deployment*				■				■				■
Task 7: *Proposal Monitoring Plan*	■			■				■				■

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Table 3. SWES Modesto Proposal Task Schedule

	2015			2016				2017				2018
	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar
	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12
Task 1: *Direct Project Administration and Reporting*												
Task 2: *Design WaterSmart Hot Water Messaging Content*												
Task 3: *Randomized Deployment of WaterSmart Software*												
Task 4: *Data platform for integrating water-energy data, infrastructure and residential systems*												
Task 5: *Application for Estimating Energy Intensity of Water and Wastewater Infrastructure Systems*												
Task 6: *Monitoring and Verification of Water-Energy Reductions from WaterSmart Deployment*												
Task 7: *Proposal Monitoring Plan*												

Table 4. SWES Ontario Proposal Task Schedule

	2015			2016				2017				2018
	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar
	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12
Task 1: *Direct Project Administration and Reporting*												
Task 2: *Design WaterSmart Hot Water Messaging Content*												
Task 3: *Randomized Deployment of WaterSmart Software*												
Task 4: *Data platform for integrating water-energy data, infrastructure and residential systems*												
Task 5: *Application for Estimating Energy Intensity of Water and Wastewater Infrastructure Systems*												
Task 6: *Monitoring and Verification of Water-Energy Reductions from WaterSmart Deployment*												
Task 7: *Proposal Monitoring Plan*												

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Table 5. SWES Riverside Proposal Task Schedule

	2015			2016				2017				2018
	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar
	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12
Task 1: *Direct Project Administration and Reporting*	■	■	■	■	■	■	■	■	■	■	■	■
Task 2: *Design WaterSmart Hot Water Messaging Content*	■				■				■			
Task 3: *Randomized Deployment of WaterSmart Software*	■	■										
Task 4: *Data platform for integrating water-energy data, infrastructure and residential systems*			■	■	■	■	■	■	■	■	■	■
Task 5: *Application for Estimating Energy Intensity of Water and Wastewater Infrastructure Systems*					■	■	■					■
Task 6: *Monitoring and Verification of Water-Energy Reductions from WaterSmart Deployment*				■				■				■
Task 7: *Proposal Monitoring Plan*	■			■				■				■

Table 1. SWES Turlock Proposal Task Schedule

	2015			2016				2017				2018
	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar
	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12
Task 1: *Direct Project Administration and Reporting*	■	■	■	■	■	■	■	■	■	■	■	■
Task 2: *Design WaterSmart Hot Water Messaging Content*	■				■				■			
Task 3: *Randomized Deployment of WaterSmart Software*	■	■										
Task 4: *Data platform for integrating water-energy data, infrastructure and residential systems*			■	■	■	■	■	■	■	■	■	■
Task 5: *Application for Estimating Energy Intensity of Water and Wastewater Infrastructure Systems*					■	■	■					■
Task 6: *Monitoring and Verification of Water-Energy Reductions from WaterSmart Deployment*				■				■				■
Task 7: *Proposal Monitoring Plan*	■			■				■				■